

DECLARATION OF DONALD R. DESOTA

1. My name is Donald R. DeSota. I am a systems engineer at International Business Machines Corp. ("IBM"), in Beaverton, Oregon.
2. I am familiar with and work in the general area of the types of cache-coherence systems described in the patent application "Method and apparatus for using global snooping to provide cache coherence to distributed computer nodes in a single coherent system," filed on January 9, 2002, and assigned serial no. 10/045,927. Therefore, I may be considered "one of ordinary skill in the art" of these types of systems.
3. Except by virtue of my employment with IBM, I have no financial stake or interest in the aforementioned patent application. The views and opinions expressed in this affidavit are my own.
4. I have reviewed the patent application to determine whether the claimed invention of claims 1-9 are described in the patent application in such a way as to reasonably convey to one of ordinary skill within the art, such as myself, whether the inventors had possession of the claimed invention at the time the patent application was filed. In particular, I have reviewed the patent application to determine whether the aspects of the claimed invention in which information regarding the state of data is stored in an interconnect "exclusively" and in which "the interconnect is a sole repository of cache coherence information within the multiple processor system" are supported by the patent application.

5. In my opinion, the patent application does indeed convey that the inventors had possession of the claimed invention to those of us who are of ordinary skill within the art. In particular, the patent application does indeed convey that the inventors had possession of an invention in which information regarding the state of data is stored in an interconnect "exclusively" and in which "the interconnect is a sole repository of cache coherence information." The following paragraphs are meant to show the reasoning process I followed in coming to this conclusion.
6. In the background section of the patent application, one particular prior art reference, US Pat. No. 6,088,769, issued to Luick, et al., is described as "not teach[ing] global snooping of all data references by all processors in a multiprocessor system by a single level central control device." (P. 4, ll. 2-4) "[O]nly some of such references reach the global control unit." (P. 4, l. 1) Luick is also described as "not teach[ing] checking data references in a single global cache coherence table." (P. 4, ll. 5-6) Global snooping of data references and checking data references as understood within this context by those of ordinary skill within the art, such as myself, means examining the data for cache coherency. Luick is described as using a single global control unit to store cache coherency information. However, Luick is not described as using only this single global unit to store the cache coherency information. Therefore, my understanding of the discussion of the Luick reference is that one problem with the prior art, as exhibited by this reference, is that cache

coherency information is not checked within a single global cache coherence table, by a single level central control device.

7. Also in the background section of the patent application, it is noted that "[t]he related background art does not teach the use of a central communications or control device which forwards results from one node to another node in a multi-node system" (P. 5, ll. 3-4) The background section ends by stating that "it is an object of the present invention to provide maintaining coherence of data stored in multiple caches within a multiprocessor system which utilizes a central tag and address crossbar as a central communications pathway." (P. 5, ll. 8-10) Because the prior art, like Luick, is described as teaching checking data references in a global cache coherence table, but not only in a global cache coherence table, and an object of the invention is described as utilizing a central tag and address crossbar in which such information is stored, the only conclusion I can draw is that the invention by comparison is to provide such a single global cache coherence table - that is, a central control device, like an interconnect, which "is a sole repository of cache coherence information," as the invention has been claimed, such that the state of the data is stored in this global table "exclusively."
8. That is, one reason why I draw this conclusion is because if the invention were not to store cache coherence information within an interconnect exclusively, as a sole repository of this information, then the invention would have the same shortcomings that the patent application attributes to Luick. Because Luick is described as being disadvantageous in part because it does

not store cache coherence information only within a global device like an interconnect, the patent application reasonably conveys to me, as one of ordinary skill within the art, that the invention is to have this cache coherence information stored exclusively within such a global device, as the sole repository of such information.

9. I have also reviewed the remainder of the patent application, and it leads me to the same conclusion that the patent application reasonably conveys to those of ordinary skill within the art, like myself, that the interconnect is a sole repository of cache coherence information and stores this information exclusively. For example, global snooping, as is accomplished by the interconnect, is utilized to provide a "single point" of serialization. (P. 8, ll. 15-16) As one of ordinary skill within the art, I can appreciate that if the interconnect were not the sole repository of cache coherence information that stores this information exclusively, then global snooping could not be utilized to provide a single point of serialization. That is, utilizing global snooping to provide a single point of serialization supports and implies (and reasonably conveys) that cache coherence information is stored within a global location, like an interconnect, exclusively, as a sole repository of this information.
10. The only thing that would lead me to believe that the inventors did not have possession of these aspects of the invention would be if the patent application were to provide any indication that cache coherence information is to be stored in any locations other than the interconnect or other global location. In reviewing the entire patent application thoroughly, however, I did not locate

any discussion in which the cache coherence information is stored anywhere other than in a central global location which makes sense, because if the cache coherence information were also stored elsewhere, then the explicit points of discussion regarding Luick made in the patent application would not be overcome. That is, the fact that the patent application only indicates cache coherence information being stored in an interconnect or other global location also is a factor which leads me to conclude that the patent application reasonably conveys to one of ordinary skill within the art, such as myself, that the inventors had possession of the invention such that such information is to be stored exclusively in the interconnect, as a sole repository of this information.

11. For the foregoing reasons, then, I am of the belief and have reached the conclusion that the patent application reasonably conveys to one of ordinary skill within the art that the inventors had at the time the patent application was filed possession of the claimed invention.

Truthfully declared on this 17th day of December, 2004, in Beaverton, Oregon,



Donald R. DeSota